

Propositions accompanying the PhD thesis
Nonrigid Registration Methods for Multimodal
Carotid Artery Imaging

1. Robust ellipse fitting to lumen cross-sections in free-hand ultrasound enables automated lumen centerline detection. (Chapter 2 – this thesis)
2. The combination of centerline and image intensities yields better registration of ultrasound and magnetic resonance images of the carotid artery than the sole use of either centerlines or image intensities. (Chapter 3 – this thesis)
3. The use of lumen segmentations improves the registration of ultrasound and magnetic resonance images of the carotid artery. (Chapters 3 and 4 – this thesis)
4. In a temporal image series of longitudinal B-mode ultrasound of the carotid artery, nonrigid registration allows construction of an improved signal-to-noise-ratio "epitome" image. (Chapter 5 and 6 – this thesis)
5. Classification of the B-mode and contrast enhanced ultrasound epitome images combined with a dual layer dynamic programming algorithm allows the segmentation of atherosclerotic plaque. (Chapter 6 – this thesis)
6. A multi-disciplinary researcher must collaborate closely with domain experts to successfully connect distinct fields.
7. Research is the activity in which the comprehension of deterministic phenomena is pursued through non-deterministic paths.
8. To succeed, planning alone is insufficient. One must improvise as well. (Isaac Asimov, *The Foundation – Part V: The Merchant Prince*).
9. The challenge in performing multiple and unrelated tasks that demand creativity lies in the difficulty of clearing the mind from the previous task to focus on the next one.
10. To understand is to perceive patterns. (Isaiah Berlin, *The proper study of mankind: an anthology of essays*)
11. Lost time is never found again. (Benjamin Franklin, *The way to wealth*)

Diego Dias Bispo Carvalho

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